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DATE: October 5, 2005

SUBJECT: COMMENTS ON PROPOSED BASIN PLAN AMENDMENTS ADDRESSING CONTROL OF DIAZINON AND CHLORPYRIFOS INTO THE LOWER SAN JOAQUIN RIVER

Thank you for the opportunity to comment on the Central Valley Regional Water Quality Control Board's (Regional Board's) staff draft report titled *Amendments to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins for the Control of Diazinon and Chlorpyrifos Runoff into the Lower San Joaquin River*. The Department of Pesticide Regulation (DPR) found the report to be well written and well documented and we generally support the provisions proposed in the amendments. Our comments are provided below.

Comment 1. Page 13, paragraph 2: The last sentence states that pesticides are likely to be one of the factors that contributed to declines in populations of invertebrates and fish in the San Francisco Estuary. The report references the Interagency Ecological Program (2004). Actually, to better help the reader find the source(s) of information presented in this paragraph, the references should be Mecum (2004) and Chappell (2004). It is difficult to substantiate the paragraph's last sentence with these references. When Mecum ventured to suggest reasons why invertebrate populations were declining, pesticides were not mentioned. Chappell made several observations about trends in catch and escapement of Central Valley Chinook salmon but did not suggest that pesticides or other pollutants may have affected these trends. We recommend that the Regional Board soften statements in the report that link population declines and other community level effects with the presence of pesticides unless more solid substantiation can be referenced.

Comment 2. Page 13, paragraph 3: The first sentence attempts to explain the fate of dormant sprays after application by way of a simple budget. Some of the pesticides will remain on the target plants as well.

Comment 3. Page 13, last paragraph (resumes on page 14): The last sentence states that the use of drip irrigation will minimize irrigation season pesticide loading. Drip irrigation alone will not drive loading to its minimum. More correctly, drip irrigation would essentially eliminate pesticide runoff from treated sites during the irrigation season.

Comment 4. Page 14, paragraph 3: Although it is clear in Tables 1.1-1.4, it would be helpful if the report's text states that the use data pertain to the lower San Joaquin Valley only.

Comment 5. Page 29, paragraph 2 under "8.": This paragraph describes how prohibitions of discharge would be applied when water quality objectives, loading capacity, or load allocations are exceeded in the San Joaquin River. As proposed, prohibitions apply upstream from monitoring sites where exceedances occur. This seems to unduly regulate dischargers in subareas where water quality indicators may be in compliance. For example, using the compliance points and subareas proposed in this amendment, if water quality objectives are met on the San Joaquin River at Lander Avenue but not at Hills Ferry Road, that indicates that the combined Turlock, Merced, and Orestimba subareas exceeded their load allocations and discharged disproportionately high loads of pesticides to the San Joaquin River. Under these circumstances, it would be justifiable if the prohibition only applies to that group of subareas and not to subareas farther upstream. As we interpret this proposed provision, however, discharge prohibitions would apply to all subareas upstream from Hills Ferry Road. We recommend that the text be revised to reflect that prohibitions of discharge only apply to subareas or tributaries that contribute enough diazinon, chlorpyrifos, or both, to cause exceedances in the San Joaquin River.

Comment 6. Page 29, paragraph 2 under "8.": The primary goal of the orchard pesticide runoff program and the diazinon runoff control program should be, as stated in element 1 of "Diazinon and Chlorpyrifos Runoff in the San Joaquin River Basin," to "ensure compliance with water quality objectives applicable to diazinon and chlorpyrifos in the San Joaquin River . . . ." The Regional Board should use water quality objectives as the primary means for determining protection of beneficial uses. Load capacities and load allocations should not have equal regulatory stature as water quality objectives, particularly when determining whether to institute a severe regulatory approach such as a prohibition of discharge. In the event that objectives are violated, load allocations should provide additional regulatory tools to help identify specific watersheds where additional action may be warranted. Also, it is conceivable that a tributary can exceed its load allocation, yet the San Joaquin River has enough capacity to dilute high incoming concentrations such that water quality objectives in the river are met. The trigger for regulating discharges in tributary's watershed should be exceedance of water quality objectives for the tributary. We recommend that the text be amended to reinforce the concept that the overall goal is attainment of water quality objectives and that load allocations may be used to refine responses to violations of objectives.

Comment 7. Page 30, general comment for the proposed implementation plan: The proposed implementation plan for diazinon and chlorpyrifos runoff in the San Joaquin River Basin includes many references to loading capacity and load allocations, some in a regulatory context. Definitions for these terms, however, are not proposed for inclusion in this implementation plan. (Note that these loading capacity and load allocation are defined elsewhere in the Basin Plan under *Orchard Pesticide Runoff and Diazinon Runoff into the Sacramento and Feather Rivers*, but those definitions are inconsistent with the apparent intent of this proposed action.) To avoid confusion and to make clear the Regional Board's intent, we recommend that definitions, consistent with those described in the staff report, be included in the Basin Plan amendment.

Comment 8. Page 30, number 3: See comments for Page 29, paragraph 2 under "8."

Comment 9. Page 30, number 6: There may be situations where in-stream conditions exceed a toxic unit value of 1.0, but they may not be measurable. For example, when the concentration of diazinon is very close to its target, a very low concentration of chlorpyrifos is all that is needed for the toxic value to exceed 1.0. However, such low concentrations of chlorpyrifos may be below the limit of quantitation for the laboratory methodology. We are not offering a solution at the time; we only want to point out how sometimes it may be difficult to determine compliance.

Comment 10. Page 31, number 7: This provision states that "the Regional Board shall require . . . additional reductions in diazinon and chlorpyrifos levels necessary to . . . protect beneficial uses in tributary waters." Given recent efforts to better define "tributary waters" and the "tributary rule," the proposed amendment should provide a more robust explanation of where diazinon and chlorpyrifos levels must be reduced, consistent with recent interpretations and clarifications of the tributary rule. Perhaps a suitable revision to provision number 7 might read, ". . . protect beneficial uses in tributary waters, consistent with Central Valley Regional Water Quality Control Board Resolution No. R5-2005-0105."

Comment 11. Page 31, number 9: This provision would require additional management measures if the loading capacity of the San Joaquin River is exceeded. To prevent the perpetuation of former, but ineffective, management practices, we recommend that "additional management measures" be changed to "an improved complement of management measures."

Comment 12. Page 34, Surveillance and Monitoring: These provisions describe monitoring and surveillance requirements to monitor pesticide runoff in the San Joaquin Valley.

A cornerstone of the proposed implementation plan for diazinon and chlorpyrifos runoff in the San Joaquin River Basin is element 3 on page 30: "The water quality objectives and allocations will be implemented through one or a combination of the following: the adoption of one or more waivers of waste discharge requirements, and general or individual waste discharge requirements." This suggests that the monitoring and reporting requirements in the Basin Plan

would be the same as–or at least very close to–those for the Regional Board's Irrigated Lands Program. There are, however, differences that make it difficult to discern the extent Monitoring and Reporting Program (MRP) requirements of the Regional Irrigated Lands Program will fulfill the proposed monitoring and surveillance requirements. We recommend that the proposed amendment mirror to the extent possible the Regional Board's other monitoring and reporting requirements. For example, the proposal could reference Regional Board Order No. R5-2005-0833, which defines objectives for the MRP, as minimum monitoring requirements. If there are additional requirements, the proposed monitoring and surveillance requirements should clearly differentiate them from the MRP requirements.

Comment 13. Page 34, Surveillance and Monitoring: Additionally, since the Tulare Lake Basin is frequently considered part of the San Joaquin Valley, these requirements should be specific to the San Joaquin River *Basin*. The first paragraph of the proposed monitoring and surveillance requirements should make that clear.

Comment 14. Page 39, paragraph 7: Please consider updating the information in this paragraph. DPR initiated the rule-making process for its proposed dormant spray regulations; the public comment period closed on August 1, 2005. Additionally, the supplemental labels for diazinon dormant sprays have been approved by DPR and are currently binding in California. Similarly, agricultural products containing chlorpyrifos also have new updated labeling, which include requirements and advisories for protecting water quality. Those labels are currently under review at DPR.

Comment 15. Page 47, paragraph 5: This paragraph begins by stating that the Basin Plan states that the Regional Board will use one tenth of the 96-hour LC50 or the most sensitive organism to interpret the narrative water quality objectives when numeric objectives or criteria are not available. In fact, the Basin Plan states that ". . . the Regional Board will use the best available technical information to evaluate compliance with the narrative objectives. Where valid testing has developed 96 hour LC50 values for aquatic organisms . . ., the Board will consider one tenth of this value for the most sensitive species tested as the upper limit . . . for the protection of aquatic life." We believe that the term "will consider" was purposefully amended into the Basin Plan rather than "will use" to preserve flexibility. To support this opinion, we recall when the Regional Board amended its Basin Plan to include guidance for determining compliance with narrative objectives (Resolution No. 90-028). At that time, Regional Board staff included in their draft functional equivalent document an excerpt from a U.S. Environmental Protection Agency technical support document that stated:

> "The acute-chronic ratio (ACR) expresses the relationship between the concentration of an effluent or a toxicant causing acute toxicity to a species and the concentration of an effluent or toxicant causing chronic toxicity to that same species. It has commonly been used to extrapolate to a "chronic toxicity" concentration using an available acute toxicity

> data point. . . . When dealing with effluent toxicity, EPA recommends regulatory agencies use 10 as an ACR (acute-chronic ratio). This value can be used both to extrapolate to chronic concentrations from acute toxicity data and to set permit limits limiting chronic toxicity where chronic toxicity is not directly measured. Of course, where acute and chronic toxicity data are available, the ACR can be directly calculated for that specific effluent."

Clearly, when the Regional Board amended this provision into its Basin Plan, it was their intent to use an ACR of 10 only in the absence of other reliable data.

In the case of diazinon and chlorpyrifos, reasonable ACRs have been developed, based on reliable acute and chronic toxicity data (Siepmann and Finlayson, 2000). Rather than 10, diazinon and chlorpyrifos ACRs for *Ceriodaphnia dubia* are 1.7 and 0.95, respectively. Thus, this is a case when defaulting to an ACR value of 10 is inappropriate.

We recommend that when water quality criteria are not available, the Regional Board "consider" all reasonable information when evaluating values that indicate compliance with narrative objectives, not only one tenth of the lowest LC50 value.

Comment 16. Page 67, last paragraph (continuing on page 68): The report notes that the recommended loading capacity is concentration-based, yet equation 6 expresses a mass-based loading capacity. To avoid confusion, equation 6 should be revised to be the same as equation 1 on page 65, which is presented as an expression of a concentration-based loading capacity.

Comment 17. Page 72, paragraph 3: We recommend that the report mention and reference a recent revision of the University of California Statewide Integrated Pest Management Program's recommendations for pest management in almonds. This revision represents the most authoritative compilation of information for pest management decision-making in almonds. If followed, these recommendations could substantially reduce almond growers' reliance on conventional pest management practices. The on-line version of the recommendations can be found at <http://www.ipm.ucdavis.edu/PMG/C003/m003yi01.html>. Similar revisions are currently under way for pest management in stone fruits.

Comment 18. Page 72, section 4.4.12: This section discusses management practices, described in two draft Regional Board reports, that "are likely to be effective in reducing offsite movement of diazinon and chlorpyrifos into surface water." It is important to note that few management practices have been demonstrated under California conditions, and with pesticides commonly used in California, to reduce pesticide runoff. After all, this is presumably the basis for proposed monitoring requirement 4 (page 34). Currently, projects are planned or under way in California to demonstrate and quantify the effectiveness of several management practices including upgraded sprayer methodology, vegetated buffers and waterways, constructed wetlands, and the

use of polyacrylamide calcium. We recommend that the report reflect that while some management practices may show potential, the degree to which they may help reduce diazinon and chlorpyrifos runoff has not been quantified.

Comment 19. Page 81, section 4.6.: As recommended in an earlier comment, the surveillance and monitoring requirements should take advantage of the monitoring and reporting requirements of the Irrigated Lands Program to the greatest extent possible. We recommend that the staff report describe the extent those monitoring and reporting requirements can help satisfy proposed surveillance and reporting requirements.

Comment 20. Figures 1.8, 1.12, and 1.13: Combined toxicity values above 1.0 are not necessarily toxic. A value of 1.0 represents a compliance point for the toxicity water quality objective, which is derived as the sum of the concentrations of diazinon and chlorpyrifos, divided by their respective numeric target or water quality objective. Since the numeric target and objective are protective in nature–not equivalent to a toxicity threshold–it is incorrect to state that data points above 1.0 are toxic. DPR recommends that the text on these figures be amended with appropriate qualifications so that toxicity values above 1 are not necessarily equated with toxic conditions.

Thank you for your consideration of our comments. We appreciate the several opportunities you afforded DPR to consult during the development of the staff report and implementation plan. We look forward to continuing our cooperative relationship as we proceed into the implementation phase of this effort. If you have any questions on our comments, please feel free to contact Marshall Lee, of my staff, at (916) 324-4269 or <mlee@cdpr.ca.gov.

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